



# Connecticut GIS Day

November 17, 2010

## Community Maps Program

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# Purpose of Community Basemaps

*Esri led initiative to publish ArcGIS user data online*

- **Provide Useful and Reliable Basemaps**
  - **Designed to support a variety of maps and apps**
- **Built with Authoritative Data from GIS Community**
  - **Data from local authorities and leading providers**
- **Provide High Quality Cartography**
  - **Beautiful maps built with best available sources**

# Community Maps Program

[www.esri.com/communitymaps](http://www.esri.com/communitymaps)

- Method to Improve Community Maps that ESRI Hosts and Provides Freely to our ArcGIS Users

**World Topo Map**



*Canada*

**World Imagery**



*Portugal*

**World Street Map**



*Hong Kong*

- **Goal:** Add Coverage and Detail to our Online Maps using Rich, Local Data Sources

# Benefits of Participation

- Detailed Basemap for **Your Community** is Online
  - High-quality cartography with **your** accurate data
  - High-performance and availability service
  - No hosting costs or support required from provider
- Basemap is **freely available** to ArcGIS and Web users
  - Use in your ArcGIS maps and apps
  - Use in your public facing Web apps
- Developer APIs freely available to build Web Apps
  - REST, JavaScript, Flex, Silverlight APIs available
  - Combine your map services with community basemap

# How to Participate in the Community Basemaps

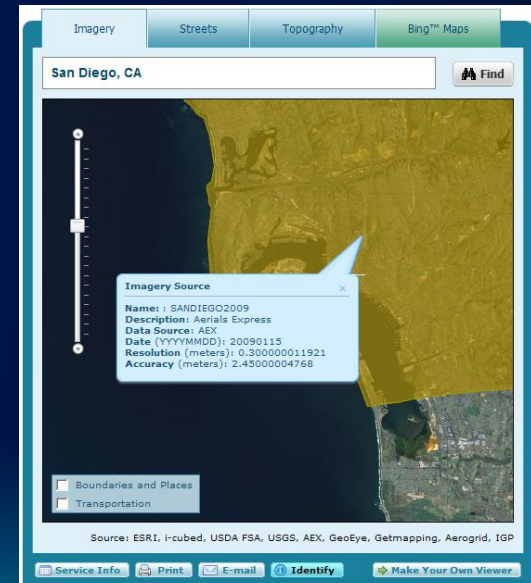
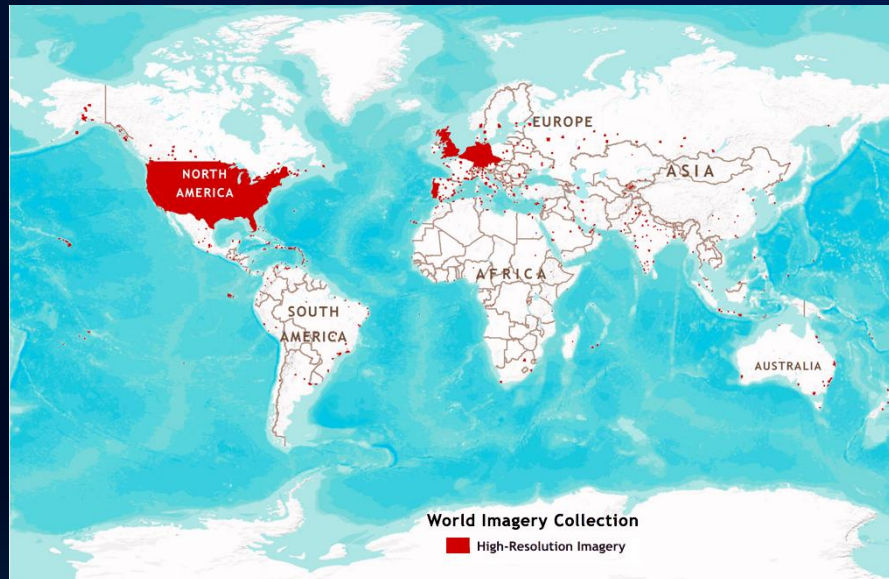
## Help Us Make Community Basemaps better with Your Data

- **Goal is to Blend Your Local, Authoritative Data into the Appropriate Community Basemap**
  - Improve the basemap with better data
- **Identify which Community Basemaps you would can help to Improve**
- **Get Started by Submitting Participation Form**



# World Imagery – What is Needed?

- Natural Color Imagery that is **More Recent and/or Higher Resolution** than what is currently available
  - 1m or better imagery where only 15m is now available
  - More recent imagery than what is currently available

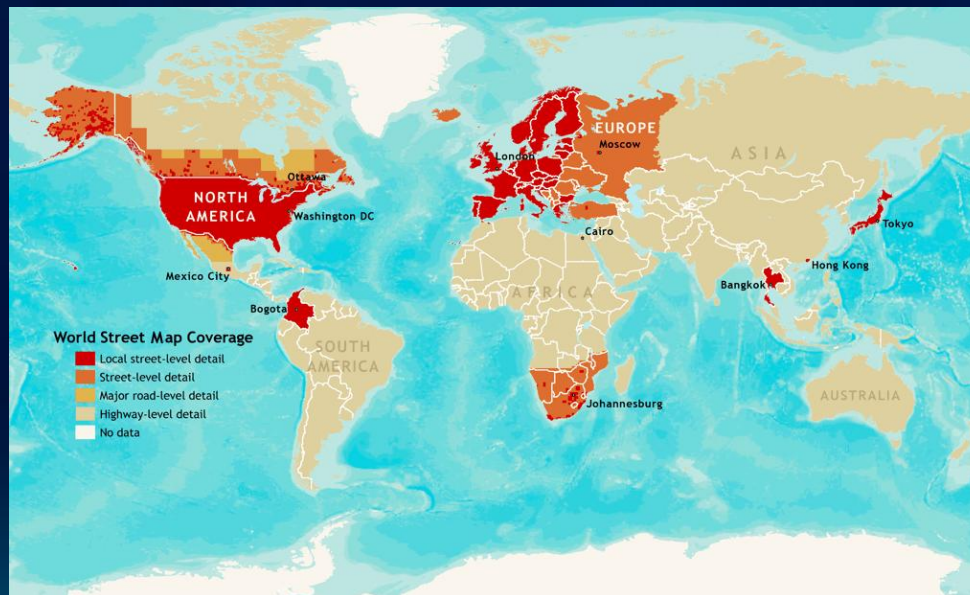


# World Imagery – How to Participate

1. **Provide Raw Imagery Your Area**
  - Deliver Imagery in GeoTIFF format
  - Ship or FTP Imagery to ESRI-Redlands
  - Provide Metadata for Imagery (Date, Res, Accuracy)
2. **ESRI will Generate Map Cache of Imagery**
  - Cache Map using Bing/Google Tiling Scheme
  - ESRI can Provide Map Cache back to Provider
3. **Publish Map to ArcGIS Online**
  - ESRI will blend imagery with other bordering area
  - ESRI will Publish Map Cache to Online Servers
  - Updates made on a semi-annual basis (Q2/Q4)

# World Street Map – What is Needed?

- **Street Map Data to Expand Street Map Globally where detailed data is not currently available**
  - Street map data including streets, highways, parks, landmarks, cities
  - Text in both local language and roman language





# Street Map – How to Participate

## 1. Author Map for Your Area

- Download and Review Street Map Template
- Assemble Necessary Data Layers
- Author Multi-scale Map in ArcGIS Desktop

## 2. Cache Map for Your Area

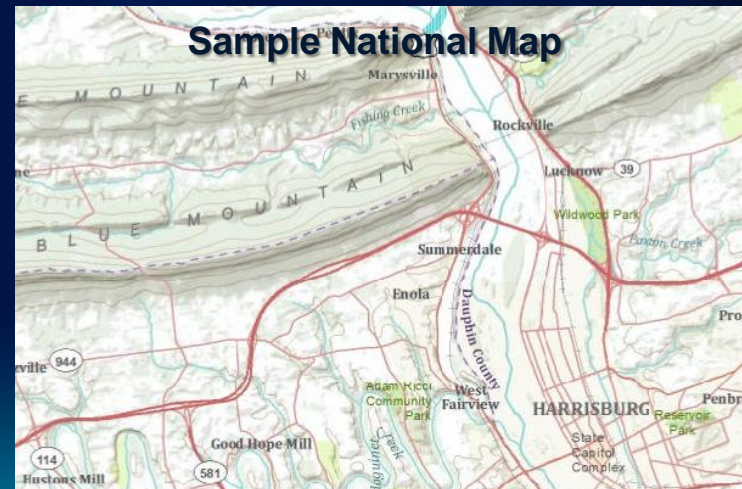
- Coordinate with ESRI on Specific Area to be Cached
- Cache Map using Bing/Google Tiling Scheme
- Publish Test Service of Map Cache for Review

## 3. Publish Map to ArcGIS Online

- Ship or FTP Map Cache to ESRI-Redlands
- ESRI will blend tiles with other bordering maps
- ESRI will Publish Map Cache to Online Servers

# World Topographic Map – What is Needed?

- **Basemap Data to Expand Topo Map Globally where detailed data is not currently available**
  - Local City / Regional Data for North America and Europe to Add Detail from ~1:20k down to ~1:1k scale
  - National Data from ~1:150k down to ~1:20k scale
    - See United States and Canada for Published Examples



# World Topographic Map – Required Data Layers

National Map (1:150k – 1:20k)	Local City Map (1:20k – 1:1k)
Streets	Streets
Administrative boundaries	Administrative boundaries
Hydrography	Hydrography
Cities\towns	Landmark areas
Rail networks	Buildings
Contours	Parcels
Shaded relief	Points of interest
Vegetation / landforms	Parks
Physiographic features *	Neighborhoods

# Topographic Map – How to Participate

## 1. Author Map for Your Area

- Download Appropriate Topo Map Templates
- Assemble Necessary Data Layers
- Author Multi-scale Map in ArcGIS Desktop

## 2. Cache Map for Your Area

- Coordinate with ESRI on Specific Area to be Cached
- Cache Map using Bing/Google Tiling Scheme
- Publish Test Service of Map Cache for Review

## 3. Publish Map to ArcGIS Online

- Ship or FTP Map Cache to ESRI-Redlands
- ESRI will blend tiles with other bordering maps
- ESRI will Publish Map Cache to Online Servers

# Frequently Asked Questions

- **Can provider build web applications using online map?**
  - Yes, the map and developer APIs will be freely available to provider.
- **Is ESRI generating revenue from the use of our data?**
  - No, map is freely available to ArcGIS users for non-commercial use.
- **Will the map be hosted in a high availability environment?**
  - Yes, map hosted in commercial data centers with 99.9% availability.



## **Frequently Asked Questions (continued)**

- **Will the map be updated to maintain its currency?**
  - **Yes, ESRI will coordinate with provider to publish updates as needed.**
  - **Annual updates planned with ESRI publishing updated map/data from provider.**

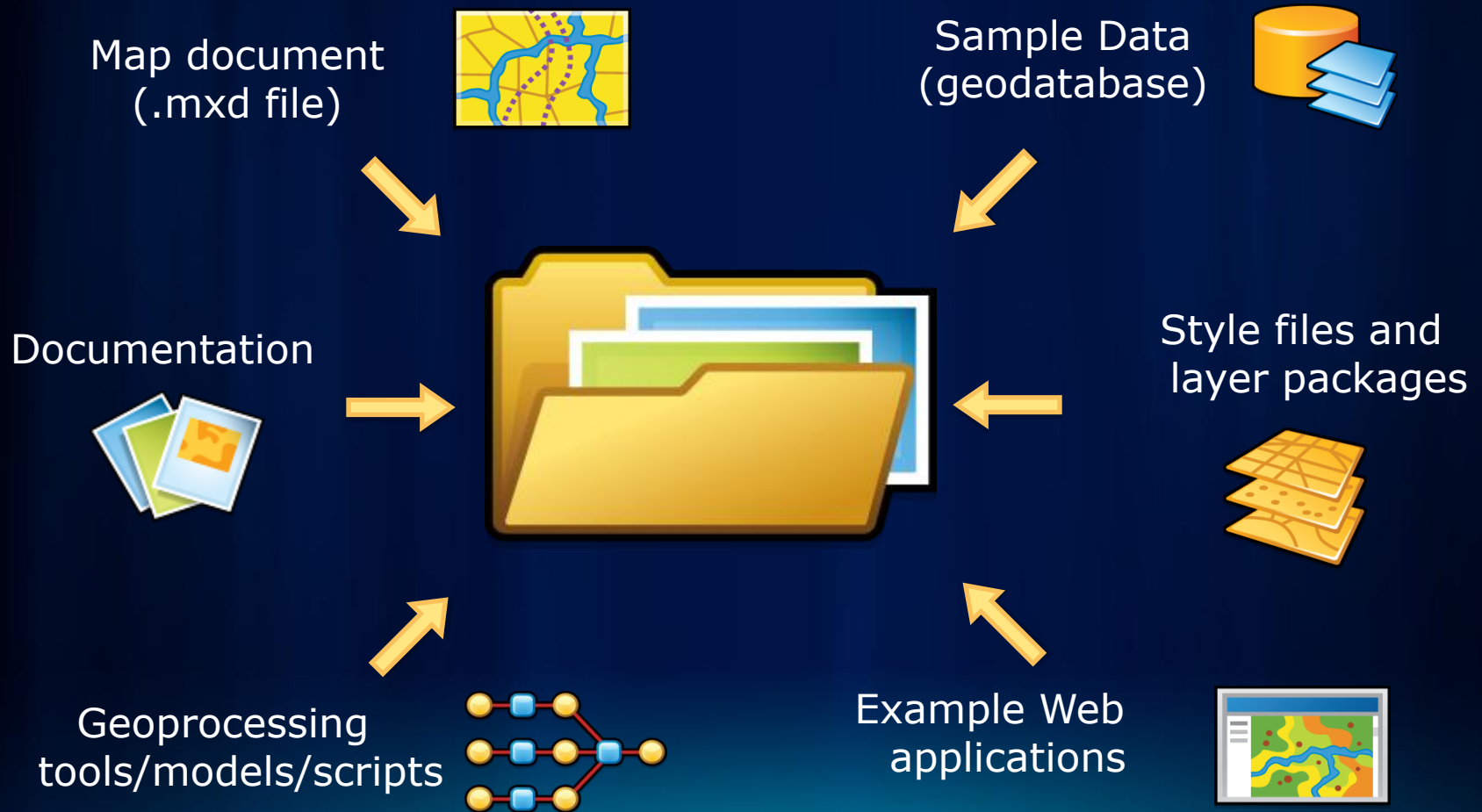
# How to Get Started

- Visit us at [www.esri.com/communitymaps](http://www.esri.com/communitymaps)
  - Learn more about community maps and how to participate
  - See map of other users who are participating
  - Fill out online participation form to have ESRI contact you
- Contact Community Maps Team
  - Email us at [online\\_content@esri.com](mailto:online_content@esri.com)
  - Contact Us Directly
    - [afrauenfelder@esri.com](mailto:afrauenfelder@esri.com)

# Community Maps Template

# What is a Map Template?

- A collection of resources that defines a well-designed map and/or application



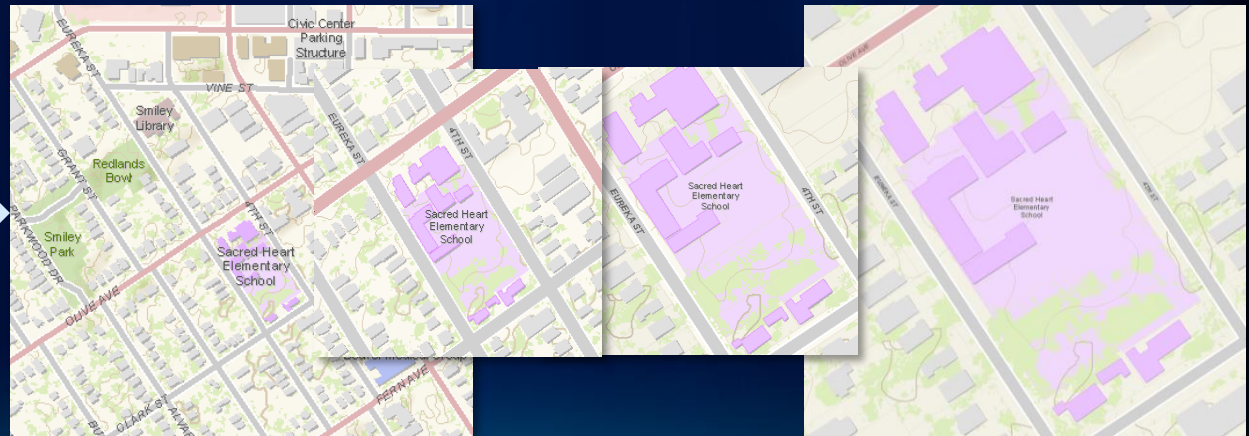
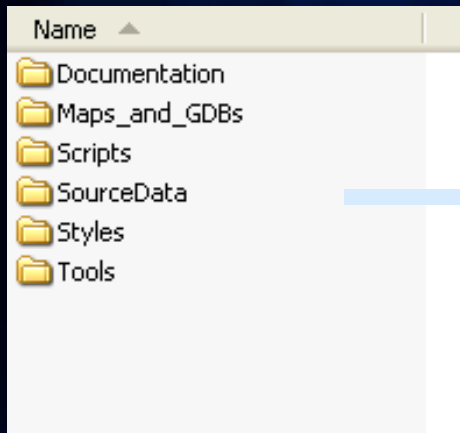
# Why use a Map Template?

- **High-quality cartography for compelling maps**
  - **Map documents** — recommended layer organization, symbology, and labeling
  - **Style files** — professional symbology you can use immediately
- **Standardized map design**
- **Sample geodatabase to get you started**
- **Sample applications (for online maps)**
- **Reduces time and cost**



# What is the Community Map Template?

- A set of resources to help you build the Community Map
  - Map document
  - Sample data
  - Style Files
  - Tools and Scripts
  - Data migration strategy
  - Detailed production procedures



# Using a Map Template

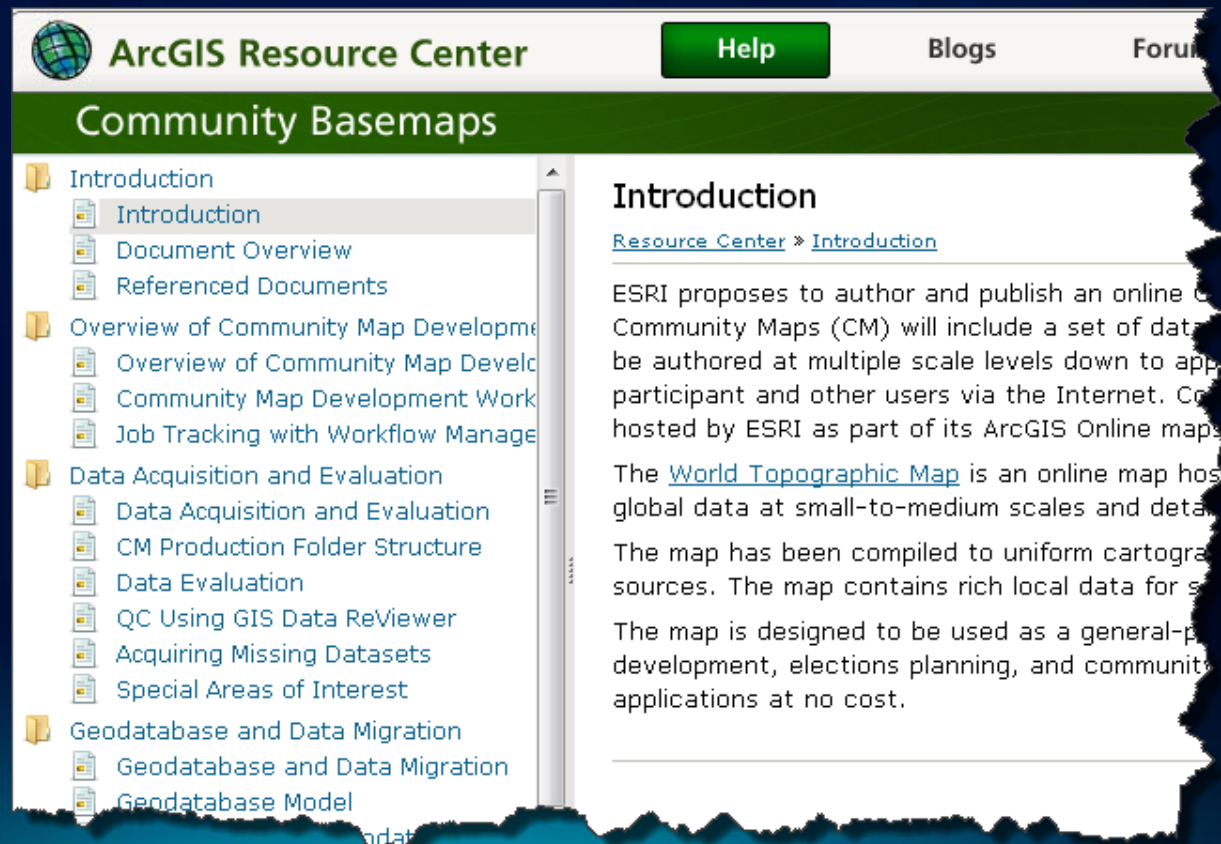
- Read the documentation that comes with the template
- Open the template map document in ArcMap
  - See how the map is defined
  - See how the layers are defined and organized
  - Compare with your data
- View the sample geodatabase in ArcCatalog
  - View the data structure
  - Compare with your data structure
- Decide how your data will work with the template

# Community Map Template -- Documentation

- Specifications and Details

- Online help -

<http://help.arcgis.com/en/communitybasemap/10.0/help/index.html>



# Datasets from local (authoritative) data sources

- Local datasets needed:

- Roads
- Parcels
- Administrative boundaries

- Datasets preferred from local:

Building footprints

Landmark areas

Hydrography

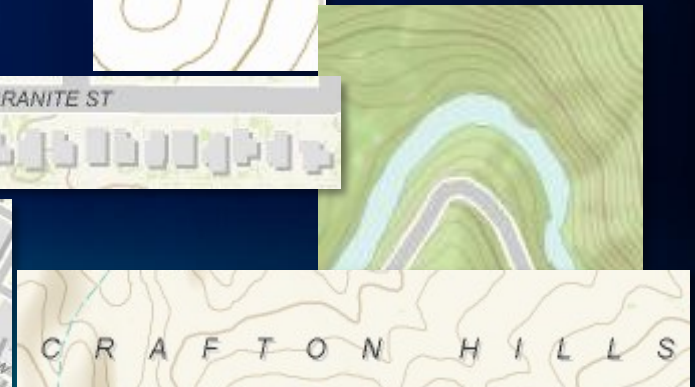
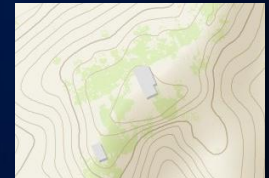
Railways

Parks

Neighborhoods (where applicable)

- Derived Data:

- Vegetation
- Landforms
- Contours
- Elevation points/ summits
- Hillshade



# Richness of cultural information

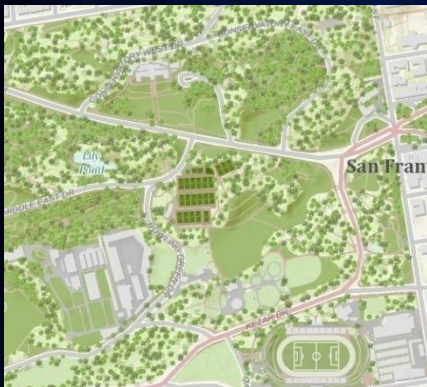
- Layers that add depth cartographically but are not required
  - Points of interest (POI) for labeling features
  - Open spaces
  - Parking lots
  - Bridges
  - Trees
  - Area of interest





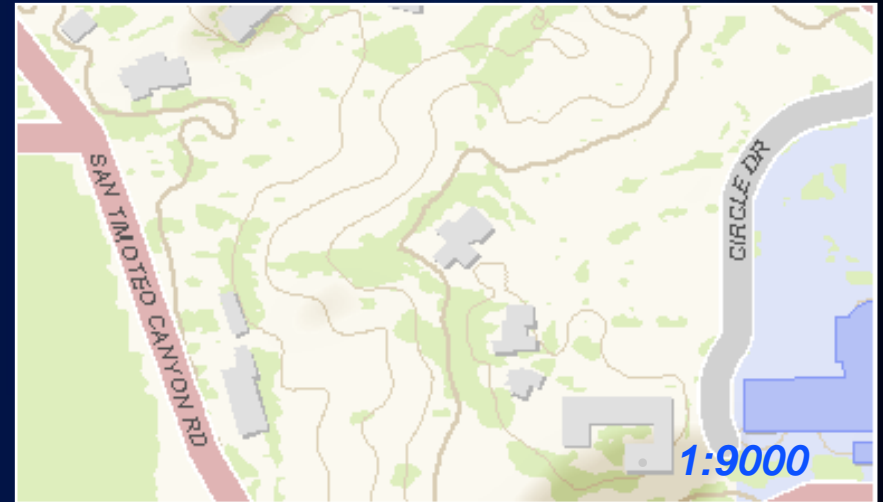
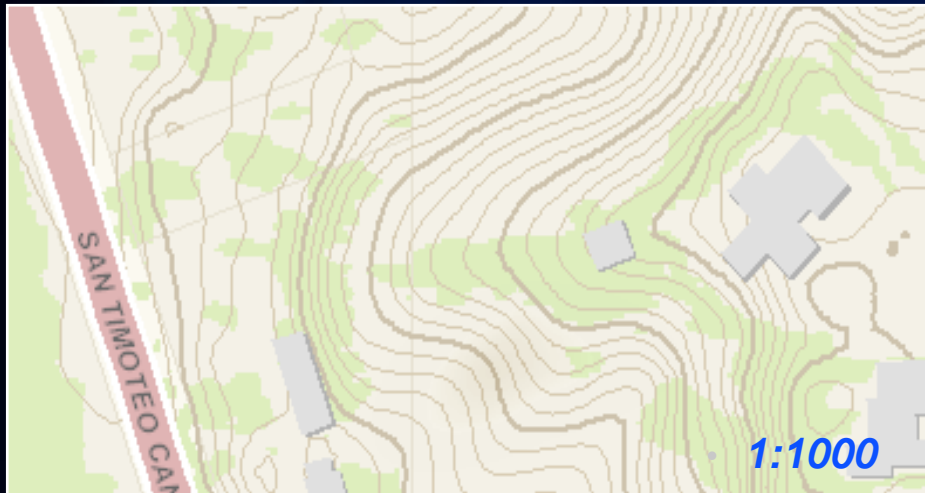
# Area of Interest

- When detailed data is available, enhance your map
- Examples of areas of interest
  - College/University/Business campuses
  - Sports stadiums
  - Parks
  - Any area that you want to highlight in your city



# Contours

- Contours are used to enhance terrain



- Factors that affect contour depiction
  - Relief
  - Map Scale
  - DEM Resolution

# Hillshade

- A hillshade will also enhance the appearance of terrain
- Hillshade can be derived from DEM



# Vegetation

- **Vegetation cover highlights the characteristics of the physical landscape.**



- **Vegetation layer can be derived from four-band imagery**
  - **Normalized Difference Vegetation Index (NDVI)**

$$\text{NDVI} = \frac{(\text{NIR} - \text{RED})}{(\text{NIR} + \text{RED})}$$

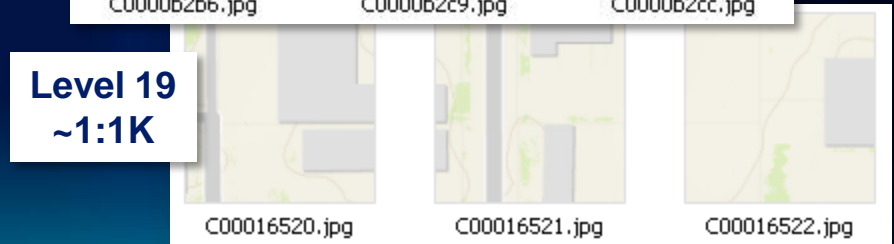
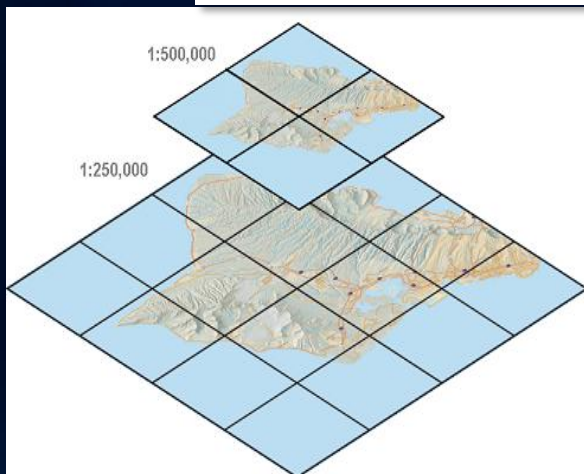
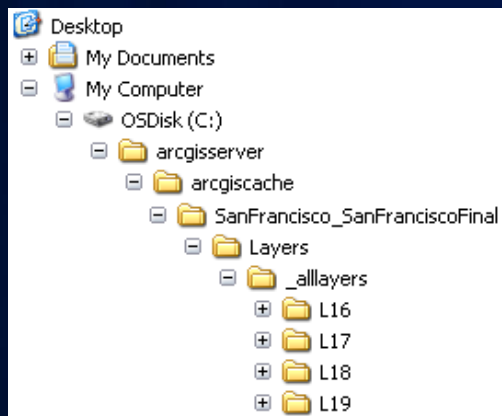


# **Caching the Map with ArcGIS Server**



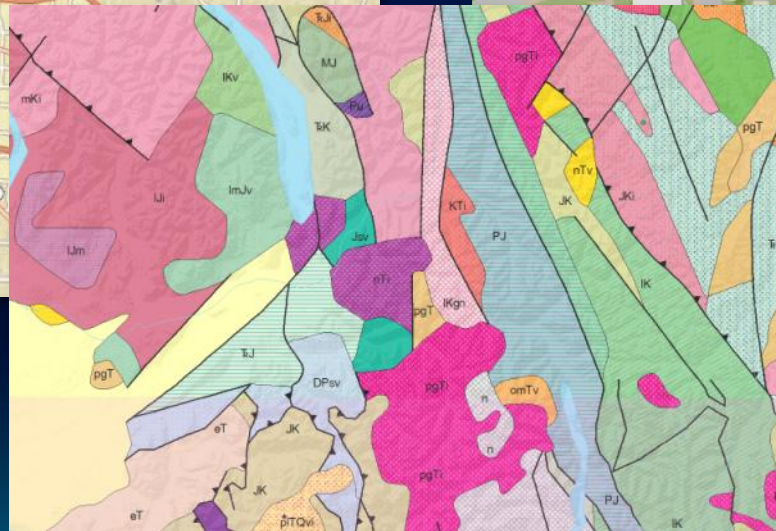
# What Are Cached Map Services?

- A set of pre-generated images of your map created at different map scales



# Which Maps Should Be Cached?

- Maps that don't change often
- Maps that have a high volume of traffic
- High-level cartography



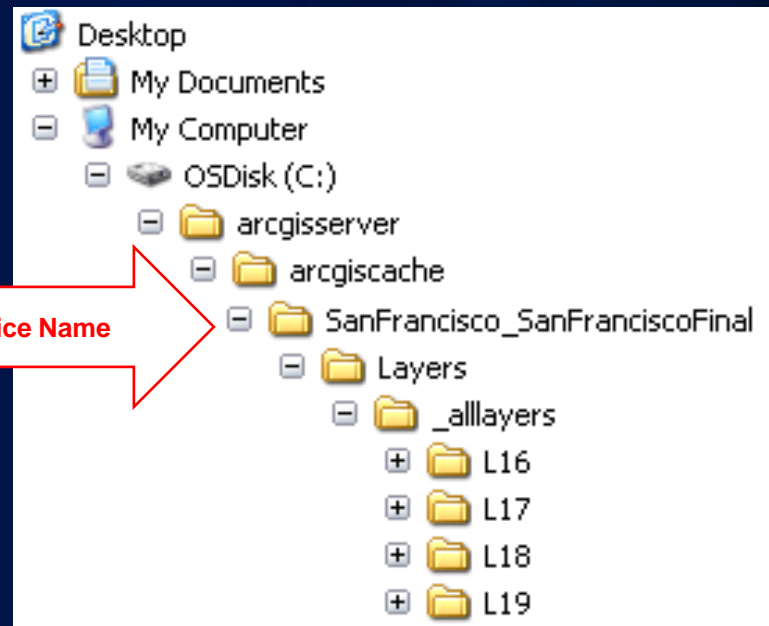
# Advantages of map caching

- **Performance**
  - Clients spend less time waiting for maps to display
- **Quality**
  - Maintain cartographic standards
- **Industry standard**
  - Common among internet mapping sites (ESRI, Google, Bing)



# Sending Your Data to ESRI

- Zip the folder that contains your cache data and send it to ESRI.



**ESRI**

**Attention: Deane Kensok, Community Maps Program**

**380 New York St.**

**Redlands, CA 92373-8100**



# **The Road Ahead**

# Updating the ArcGIS Online Community Map

- **How often do you update the map cache?**
  - Preferred minimum frequency is one year.
  - Participants have the option to deliver more frequent caches.
- **Scope of update**
  - Update all layers and recache.
  - Update only changed layers and recache.
- **Process or methodology**
  - Use the recommended ETL workflow.
  - Use an alternate method with ArcGIS Desktop.





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